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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
09/339,869	06/25/1999	JUN KOIDE	35.C13613	3159

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EXAMINER

TUGBANG, ANTHONY D

ART UNIT	PAPER NUMBER
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3729

DATE MAILED: 04/10/2002

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary

Application N .

09/339,869

Applicant(s)

KOIDE ET AL.

Examiner

Dexter Tugbang

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-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
- Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 11 February 2002.
- 2a) ☐ This action is FINAL. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-3 and 5-15 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1-3 and 5-15 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☒ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on _____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
- Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
- 11) ☐ The proposed drawing correction filed on _____ is: a) ☐ approved b) ☐ disapproved by the Examiner.
- If approved, corrected drawings are required in reply to this Office action.
- 12) ☐ The oath or declaration is objected to by the Examiner.

Priority under 35 U.S.C. §§ 119 and 120

- 13) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☒ All b) ☐ Some * c) ☐ None of:
1. ☒ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. _____.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
- * See the attached detailed Office action for a list of the certified copies not received.
- 14) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. § 119(e) (to a provisional application).
- a) ☐ The translation of the foreign language provisional application has been received.
- 15) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. §§ 120 and/or 121.

Attachment(s)

- 1) ☒ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☐ Information Disclosure Statement(s) (PTO-1449) Paper No(s) _____.
- 4) ☐ Interview Summary (PTO-413) Paper No(s). _____.
- 5) ☐ Notice of Informal Patent Application (PTO-152)
- 6) ☐ Other: _____.

DETAILED ACTION

Continued Prosecution Application

1. The request filed on 2/11/02 for a Continued Prosecution Application (CPA) under 37 CFR 1.53(d) based on parent Application No. 09/339,869 is acceptable and a CPA has been established. An action on the CPA follows.

Specification

2. The abstract of the disclosure is objected to because the abstract appears to be more than 150 words in length. Correction is required. See MPEP § 608.01(b).

3. Applicant is reminded of the proper language and format for an abstract of the disclosure.

The abstract should be in narrative form and generally limited to a single paragraph on a separate sheet within the range of 50 to 150 words. It is important that the abstract not exceed 150 words in length since the space provided for the abstract on the computer tape used by the printer is limited. The form and legal phraseology often used in patent claims, such as "means" and "said," should be avoided. The abstract should describe the disclosure sufficiently to assist readers in deciding whether there is a need for consulting the full patent text for details.

The language should be clear and concise and should not repeat information given in the title. It should avoid using phrases which can be implied, such as, "The disclosure concerns," "The disclosure defined by this invention," "The disclosure describes," etc.

4. The title of the invention is not descriptive. A new title is required that is clearly indicative of the invention to which the claims are directed.

The following title is suggested: Method of Processing Discharge Port of an Ink Jet Head.

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Claim Objections

5. Claims 2, 3, 5 and 7-15 are objected to because of the following informalities: the preamble of dependent Claims 2, 3, 5 and 7-15 is inconsistent with the preamble of independent Claims 1 and 6. The examiner suggests amending the preamble of each of the dependent claims to read as: --The method for processing the ink discharge port of the ink jet head...--.

Appropriate correction is required.

Claim Rejections - 35 USC § 112

6. The following is a quotation of the second paragraph of 35 U.S.C. 112:

The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

7. Claim 2 is rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.

In Claim 2, the phrase "the same angle" (line 6) lacks positive antecedent basis.

Claim Rejections - 35 USC § 102

8. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

9. Claims 1-3, 6-10 and 15 are rejected under 35 U.S.C. 102(b) as being anticipated by PCT Publication WO 97/26137, referred to hereinafter as WO'137.

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WO'137 discloses a method of processing an ink discharge port for manufacturing an ink jet head comprising: closely contacting a mask plate 130 (in Fig. 3) having openings corresponding to discharge ports on a discharge port plate 20 with a face (either one of surfaces 22 or 24) of the discharge port plate 20 on an ink discharge side; and forming the discharge port on the discharge port plate by irradiating plural high energy ultraviolet beams simultaneously through the mask plate so that the beams are inclined with respect to a vertical axis 30 that is perpendicular to the mask plate 130 (shown in Fig. 3 and discussed at page 14, lines 21+). In Figure 3, the discharge port is shown to have a shape which is widened to a dimension of x3 in a direction away from a source 40 of the beams.

With regards to Claims 2, 3, 8, 9, and 10, WO'137 further teaches that the symmetry of incident beams (shown in either one of Figures 1-3) clearly indicates that the incident beams are symmetrical, have the same angle, and are equally divided with respect to the vertical axis 30. Further regarding Claims 3 and 9, WO'137 additionally teaches a division of beams is within a "circumference of a circle" as indicated by Figure 4a.

With regards to Claim 7, WO'137 discusses bonding the discharge port plate to the ink jet main body at page 15, lines 22+.

With regards to Claim 15, WO'137 further discussed the concept of the excimer laser at page 15, line 7.

Claim Rejections - 35 USC § 103

10. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

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(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

11. Claims 5 and 11 are rejected under 35 U.S.C. 103(a) as being unpatentable over WO'137.

With regards to Claims 5 and 11, to choose any desired specific angle of irradiation of the incident beams in relationship to the arrangement direction of the discharge port is an obvious matter of design choice, since the Applicants have not disclosed that the claimed *angle of 45 °* solves any stated problem or is for any particular purpose, and it appears that the invention would perform equally well with the various angles of incident beams taught by WO'137.

12. Claims 12 and 13 are rejected under 35 U.S.C. 103(a) as being unpatentable over WO'137 in view of Japanese Patent Publication JP2-187346, referred to hereinafter as JP'346.

WO'137 discloses the claimed manufacturing method as relied upon above. WO'137 does not teach 1) providing the ink jet head with ink flow paths rectangular in shape with corresponding ink flow paths connected to the discharge ports, and 2) that the discharge port plate is formed by a resin.

JP'346 shows an ink jet head in which corresponding ink flow paths 14 (in Fig. 9) are connected to a discharge port plate 10. JP'346 teaches that the discharge port plate is made of a resin material, which is ablated by laser beams to form the discharge ports 11, and that the rectangular ink flow paths 14 are formed by the laser beams after the discharge ports are formed (see Purpose). An advantage of the above process and material provides the necessary amount of jet-out speed for the ink drops onto a medium, i.e. paper (again, see Purpose).

It would have been obvious to one of ordinary skill in the art at the time the invention was made to have modified the method of WO'137 by including the process of assembling the

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ink jet head to the discharge port plate and resin material of the discharge port plate, as taught by JP'346, to positively provide an operational ink jet head with the necessary amount of jet-out speed for the ink drops onto the medium.

13. Claim 14 is rejected under 35 U.S.C. 103(a) as being unpatentable over WO'137 in view of Muto'894.

WO'137 discloses the claimed manufacturing method as relied upon above. WO'137 does not teach that the discharge port plate is formed of silicon nitride.

Muto'894 teaches that forming discharge port plates (nozzle plate 61) can be accomplished by conventional, art recognized equivalent materials of either resin or silicon nitride (see col. 25, line 55 to col. 26, line 16). Therefore, it would have been obvious to one having ordinary skill in the art at the time the invention was made to have formed the discharge port plate of WO'137, alternatively, with such conventional, art recognized equivalent materials with compositions of either resin or silicon nitride.

Response to Arguments

14. Applicant's arguments with respect to Claims 1-3 and 5-15 have been considered but are moot in view of the new ground(s) of rejection.

Conclusion

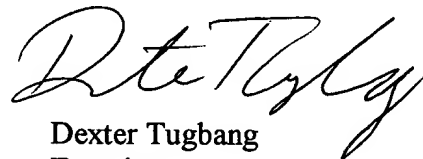
15. The prior art made of record and not relied upon is considered pertinent to applicant's disclosure.

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16. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Dexter Tugbang whose telephone number is 703-308-7599. The examiner can normally be reached on Monday - Friday 9:00 am - 5:30 pm.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Peter Vo can be reached on 703-308-1789. The fax phone numbers for the organization where this application or proceeding is assigned are 703-305-3590 for regular communications and 703-305-3588 for After Final communications.

Any inquiry of a general nature or relating to the status of this application or proceeding should be directed to the receptionist whose telephone number is 703-308-0858.

A handwritten signature in black ink, appearing to read 'Dexter Tugbang', is positioned above the printed name and title.

Dexter Tugbang
Examiner
Art Unit 3729

adt
April 5, 2002